

PATENT SPECIFICATION

Inventor: THOMAS WILSON RAMSAY.

645,558



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THE PATENT OFFICE,
25, SOUTHAMPTON BUILDINGS,
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PROVISIONAL SPECIFICATION

Improvements relating to Weather-Excluders and the like for Doors and Windows

We, MORRIS MOTORS LIMITED, a Company incorporated under the Laws of Great Britain, of Cowley, Oxford, do hereby declare the nature of this invention to be as follows:—

This invention relates to means for sealing doors and windows against draughts, dust and the weather, and for preventing rattling thereof, and is particularly applicable to motor vehicles.

The door openings of motor vehicles of modern construction are usually formed with a marginal sheet metal flange which serves as an abutment face for the door and has associated with it a rubber sealing strip which also acts as a cushion upon the door being closed. Hitherto it has been customary to employ a sealing strip having an approximately tubular portion which is split longitudinally so that it can embrace the sides of the aforesaid flange, the free edge at one side of the split overhanging a flat attachment portion in the form of a substantially tangential wing-like extension at the opposite side of the split.

Ordinarily, the form of sealing strip referred to above is conveniently attached by clamping its wing-like extension between the frame of the door opening and the trim, the latter being screwed or otherwise secured to the frame. This expedient, however, cannot be employed in the case of a vehicle which has no trim applied to the door pillars or other parts of its door openings, and the attachment of the sealing strip direct to the non-trimmed surface would be unacceptable on account of the resulting unsightly appearance.

According to this invention a weather-excluder or other sealing device for doors or windows comprises rubber tubing having an integrally formed supporting portion of substantially U-shaped cross-

section which is arranged to embrace a metal flange providing an abutment face around the door or window opening, and is itself embraced by a snugly fitting channel-shaped flexible retaining strip of thin metal which is so designed as to be engaged automatically by anchoring means when it is pushed into place on the flange. The anchoring means may, for example, be constituted by a rib or shoulder provided on one side of the flange so as to afford a projection behind which an inwardly directed edge of the retaining strip can be snapped in place. But we prefer to employ as the anchoring means, U-shaped clips of spring steel which are pushed on the flange and are formed with barbs arranged to exert a gripping action on it.

The rubber part of the sealing device may conveniently be formed by extrusion. As already indicated, it is composed of tubing with an integral supporting portion which is of substantially U-shaped cross-section. The tubing, which may be of cylindrical or oval section, is disposed at one side of the U-shaped supporting portion and is united with the adjoining limb of that portion by a lateral web. The U-shaped portion is embraced by a snugly fitting channel-shaped retaining strip of thin metal which is formed with closely spaced transverse slits to endow it with the necessary degree of flexibility to enable it readily to conform to the shape of the door or window opening.

The retaining strip, which is concealed by a covering of fabric trim secured to its outer surface by adhesive, is simply fitted over the U-shaped rubber portion preparatory to mounting the assembled sealing device on the flange of the door or window opening. If desired, the retaining strip may be attached at

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its inner surface to the U-shaped rubber portion, either by means of adhesive or by vulcanization, but experiments so far made indicate that such attachment is unnecessary.

One edge of the retaining strip projects beyond the end of the neighbouring limb of the U-shaped rubber portion, and is directed inwardly so that it slightly obstructs the mouth of the U-shaped portion. The purpose of this is to enable the retaining strip to co-operate with the above-mentioned anchoring means when the sealing device is fitted on the flange of the door or window opening. The U-shaped anchoring clips, referred to previously, which are splayed at the mouth, are first pushed on the flange as far as

they will go, namely until the closed end of the clip meets the edge of the flange, and are spaced about two or three inches apart. Then the assembled sealing device is fitted by pushing its U-shaped portion on the flange until the inwardly directed edge of its retaining strip snaps behind the outwardly directed adjoining edge of each of the anchoring clips. In this way the sealing device is held in place very satisfactorily, the barbs of the anchoring clips gripping the flange so firmly that these clips can only be dislodged by the application of considerable force.

Dated this 4th day of October, 1948.
For the Applicants:

A. H. STEED,
Chartered Patent Agent.

COMPLETE SPECIFICATION

Improvements relating to Weather-Excluders and the like for Doors and Windows

We, MORRIS MOTORS LIMITED, a Company incorporated under the Laws of Great Britain, of Cowley, Oxford, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to means for sealing doors and windows against draughts, dust and the weather, and for preventing rattling thereof, and is particularly applicable to motor vehicles.

The door openings of motor vehicles of modern construction are usually formed with a marginal sheet metal flange which serves as an abutment face for the door and has associated with it a rubber sealing strip which also acts as a cushion upon the door being closed. Hitherto it has been customary to employ a sealing strip having an approximately tubular portion which is split longitudinally so that it can embrace the sides of the aforesaid flange, the free edge at one side of the split overhanging a flat attachment portion in the form of a substantially tangential wing-like extension at the opposite side of the split.

Ordinarily, the form of sealing strip referred to above is conveniently attached by clamping its wing-like extension between the frame of the door opening and the trim, the latter being screwed or otherwise secured to the frame. This expedient, however, cannot be employed in the case of a vehicle which has no trim applied to the door pillars or other parts of its door openings, and the attachment of the sealed strip direct to

the non-trimmed surface would be unacceptable on account of the resulting unsightly appearance.

According to this invention a weather-excluder or other sealing device for doors or windows comprises rubber tubing having an integrally formed supporting portion of substantially U-shaped cross-section which is arranged to embrace a metal flange providing an abutment face around the door or window opening, and is itself embraced by a snugly fitting channel-shaped flexible retaining strip of thin metal which is so designed as to be engaged automatically by anchoring means when it is pushed into place on the flange. The anchoring means may, for example, be constituted by a rib or shoulder provided on one side of the flange so as to afford a projection behind which an inwardly directed edge of the retaining strip can be snapped in place. But we prefer to employ, as the anchoring means, U-shaped clips of spring steel which are pushed on the flange and are formed with barbs arranged to exert a gripping action on it.

Referring to the accompanying drawings:—

Figure 1 is a transverse section of the sealing strip employed in carrying out the invention, fitted with its retaining strip;

Figure 2 is an enlarged fragmentary perspective view of the retaining strip;

Figure 3 is a fragmentary perspective view of a supporting flange around the door or window opening, fitted with clips for anchoring the sealing device;

Figure 4 is an enlarged perspective

view of one of the anchoring clips; and Figure 5 is a transverse section showing the sealing device fitted on the supporting flange.

5 The rubber sealing strip shown in Figure 1, which is conveniently formed by extrusion, is composed of tubing 1 (of cylindrical or oval section) united by a lateral web 2 with the adjoining limb of an integral supporting portion 3 of substantially U-shaped cross-section. The supporting portion 3 is embraced by a snugly fitting channel-shaped retaining strip 4 of thin metal having a covering 5 of fabric trim secured to its outer surface by adhesive. If desired, the inner surface of the retaining strip 4 may be attached to the U-shaped rubber part 3, either by means of adhesive or by vulcanization, but, generally speaking, we have found such attachment to be superfluous. One edge 6 of the retaining strip 4 projects beyond the end of the neighbouring limb of the U-shaped rubber part 3, and is curled inwardly so that it slightly obstructs the mouth of that part. Also the retaining strip 4 is formed with two sets of closely spaced transverse slits 7 and 8 respectively, which are arranged as shown in Figure 2 so as to endow this strip with the necessary degree of flexibility to enable it readily to be bent into conformity with the shape of the door or window opening.

85 The frame of the door or window opening has an abutment flange 9 (Fig. 3) extending around it to which the sealing strip is anchored by means of U-shaped clips 10 of spring steel. These clips, which are splayed at the mouth to co-operate with the inwardly curled edge 6 of the retaining strip 4, are pushed on the flange 9 as far as they will go, namely until the closed end of the clip 45 meets the edge of the flange, and are spaced about two or three inches apart. The clips are formed at each end with inwardly directed barbs 11 (Fig. 4) by which they are firmly retained in place on the flange, considerable force being required to dislodge them.

The sealing strip is fitted, as indicated in Figure 5, by pushing its U-shaped part 3 on the flange until the inwardly curled edge 6 of the retaining strip snaps behind the outwardly turned adjoining edge portion 12 of each of the anchoring clips 10. The neighbouring limb of the part 3 is chamfered at 13 to afford clearance for the edge portion 12 of each clip.

Although in Figure 5 appreciable clearance is indicated between the flange 9 and the sides of the clip 10, this is merely for the sake of clearness in the drawing. Actually the clips hug the flange closely, except for the inclined edge portion 12.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A weather-excluder or other sealing device for doors or windows, comprising rubber tubing having an integrally formed supporting portion of substantially U-shaped cross-section which is arranged to embrace a metal flange providing an abutment face around the door or window opening, and is itself embraced by a snugly fitting channel-shaped flexible retaining strip of thin metal which is so designed as to be engaged automatically by anchoring means when it is pushed into place on the flange.

2. A weather-excluder or other sealing device for doors or windows according to claim 1, in which one edge of the retaining strip projects beyond the end of the neighbouring limb of the U-shaped rubber part, and is directed inwardly so that it slightly obstructs the mouth of that part for engagement by the anchoring means.

3. A weather-excluder or other sealing device for doors or windows according to claim 1 or claim 2, in which the anchoring means is constituted by U-shaped clips of spring steel splayed at the mouth and formed at each end with inwardly directed barbs which firmly retain the clips in place on the abutment flange.

4. A rubber sealing strip and an associated retaining strip of flexible metal for application to an abutment flange of a door or window opening, constructed and assembled substantially as described with reference to Figure 1 of the accompanying drawings.

5. Means for sealing a door or window opening, comprising the combination of elements substantially as described with reference to Figure 5 of the accompanying drawings.

Dated this 30th day of May, 1949.
For the Applicants:

A. H. STEED,
Chartered Patent Agent.

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Fig. 3.

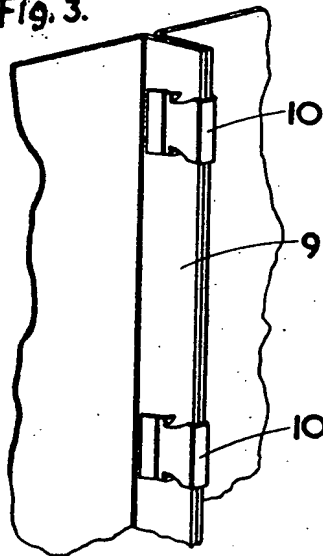


Fig. 1.

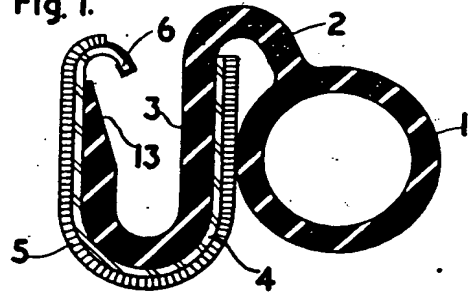


Fig. 4.

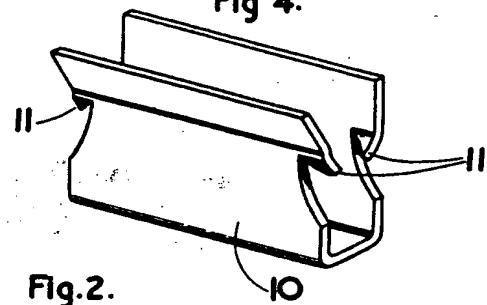


Fig. 2.

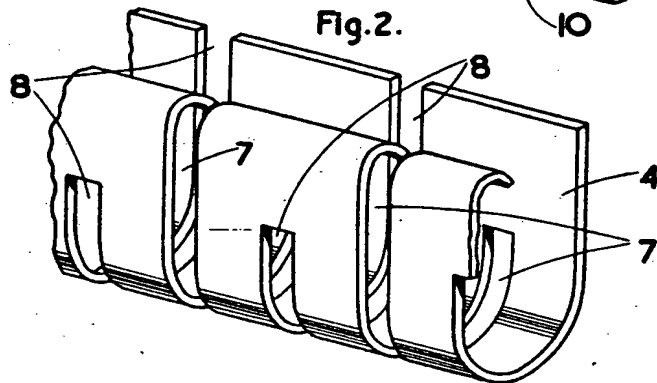
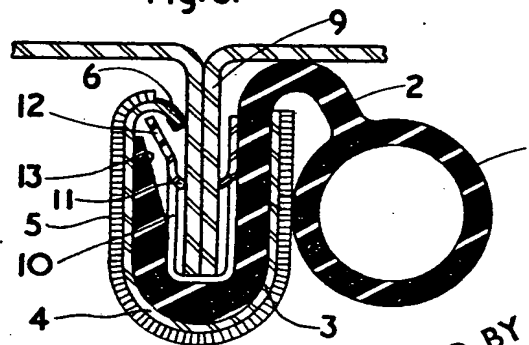


Fig. 5.



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[This Drawing is a reproduction of the Original on a reduced scale.]

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